

IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~striketrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

Please AMEND claims 2, 3, 5, 9, 11 and 16-20, CANCEL claim 1, 6-8, 12-15 and 21, and ADD claim 22 in accordance with the following:

1. (CANCELLED)
2. (CURRENTLY AMENDED) The collimating lens as claimed in claim 4~~3~~, wherein the collimating lens and the diffraction surface of the collimating lens have a positive power.

3. (CURRENTLY AMENDED) ~~The collimating lens as claimed in claim 1, wherein the refraction surface and the diffraction surface have a power to satisfy a condition of:~~ A collimating lens to transform a ray of light from a light source into approximate parallel rays, comprising:
the collimating lens made of a single lens of plastic, the single lens having a refraction surface provided on one side and a diffraction surface provided on an opposite side, wherein a power of the diffraction surface is larger than a power of the refraction surface, and
the refraction surface and the diffraction surface have a power to satisfy a condition of:

$$-3 \leq \frac{K_d}{K_r} \leq -2$$

where, K_d is a power of the diffraction surface, and K_r is a power of the refraction surface

4. (ORIGINAL) The collimating lens as claimed in claim 3, wherein the refraction surface and the diffraction surface have the powers to satisfy a condition of:

$$\frac{K_d}{K_r} = -\frac{(2n + (n+1)(n^2 + 2))}{4n}$$

where, K_d is the power of the diffraction surface, K_r is the power of the refraction surface, and n is an index of refraction of the plastic that constitutes the collimating lens.

5. (CURRENTLY AMENDED) The collimating lens as claimed in claim 43, wherein at least one of the refraction surface and the diffraction surface is provided as a non-spherical surface.

6-8. (CANCELLED)

9. (CURRENTLY AMENDED) The collimating lens as claimed in claim 43, wherein the refraction surface and the diffraction surface have powers to satisfy a condition of;

$$\frac{K_d}{K_r} = -\frac{(2n + (n+1)(n^2 + 2))}{4n}$$

where, K_d is the power of the diffraction surface, K_r is the power of the refraction surface, and n is an index of refraction of the plastic that constitutes the collimating lens.

10. (CANCELLED)

11. (CURRENTLY AMENDED) The collimating lens as claimed in claim 43, wherein both the refraction surface and the diffraction surface are provided as non-spherical surfaces.

12-15. (CANCELLED)

16. (CURRENTLY AMENDED) The collimating lens as claimed in claim 43, wherein at least one of the refraction surface and the diffraction surface is provided as a spherical surface.

17. (CURRENTLY AMENDED) The collimating lens as claimed in claim 43, wherein at least one of the refraction surface and the diffraction surface is provided as a spherical surface.

18. (CURRENTLY AMENDED) ~~The collimating lens as claimed in claim 3, wherein the diffraction surface has positive power and the power of the diffraction surface is larger than the power of the refraction surface by a difference which satisfies the condition of: A collimating lens to prevent variation of focal distance, comprising:~~

a refraction surface provided on one side; and
a diffraction surface provided on an opposite side, wherein the refraction and diffraction
surfaces prevent a power of the collimating lens from changes due to a change in temperature,
where a power of the diffraction surface is larger than a power of the refraction surface, and
the diffraction surface has positive power and the power of the diffraction surface is
larger than the power of the refraction surface by a difference which satisfies the condition of:

$$-3 \leq \frac{K_d}{K_r} \leq -2$$

where, K_d is the power of the diffraction surface, and K_r is the power of the refraction surface.

19. (CURRENTLY AMENDED) The collimating lens as claimed in claim ~~45~~18, the collimating lens is made of a single lens.

20. (CURRENTLY AMENDED) The collimating lens as claimed in claim ~~45~~18, the collimating lens is made of at least one plastic lens.

21. (CANCELLED)

22. (NEW) A collimating lens to prevent variation of a focal distance, comprising:
a refraction surface formed as a first side of the collimating lens, the refraction surface having a varying focal point and being non-spherical; and
a diffraction surface having a varying focal point formed as a second side of the collimating lens, wherein a focal distance of the diffraction surface is offset by said varying focal point of the refraction surface when a focal distance of the diffraction surface varies due to a change in temperature.